A CASE OF MEDIASTINO-PERICARDITIS IN A CHILD; SECONDARY EMPYEMA; OPERATION; DEATH.

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THE early clinical symptoms of mediastinitis are most indefinite, and the disease is one that may be readily overlooked until some of the secondary or concomitant symptoms assist in clearing up the diagnosis; even then, however, the primary pathological change may escape detection unless a post-mortem is obtained.

It is on this account that I deem the following case worthy of record:

M. D., aged six, was under the care of Dr. Bowditch Morton, of Coronado, by whom I was called in consultation. The child was somewhat below the average in development, strength, and vitality; she complained of a constant pain, with marked exacerbations over the left costo-sternal region, extending from about the mid-sternal line to a little below the costo-xiphoid angle; over this region it was thought that there was some impairment of the normal percussion resonance, although this alteration was not marked.

The cervical veins were distended, the action of the general circulation was tumultuous and irregular, the temperature was a degree and a half above the normal. The child remained in about this condition for the next thirty days, the temperature, however, remaining high, sometimes 103°, usually 101°, rarely normal, if so, remaining at that point for a few hours only. Upon the next consultation, dulness was marked in the region above described, and extending towards the left anterior axillary line.

The respiration and circulation were much interfered with, the former was recorded at from 28 to 40 per minute and the latter from 135 to 160. No pericardial or exocardial murmur could be detected now, or at any future time during the progress of the case; slight œdema of the face was present and a similar condition about the ankles. The liver was somewhat enlarged, but ascites did not arise.

The temperature was now ranging from 103° to 104.5° in the afternoon falling to 99.5° or 100° in the morning. No sweats. Urine contained albumin.

An aspirating needle was introduced at a point a quarter of an inch

within and above the position of the normal apex-beat of the heart; pus was obtained. Ether administered and incision made, nine ounces of pus removed, and a rubber drain inserted; dressed with iodoform gauze and bichloride cotton.

The child was much relieved.

Within a fortnight I was again called to the case, Dr. Morton's record showing that the temperature was far above the normal,—maximum 105° F.,—the case was not progressing favorably, notwithstanding the fact that the drainage was good and sufficient. Careful physical examination demonstrated a collection of fluid, probably pus, within the pleura, evidently sacculated; an incision was made in the eighth interspace, at the post-axillary line, the point of maximum dulness, sixteen ounces of pus was removed, and a rubber tube inserted as before.

The child again did well for a few days, large masses of fibrin came away in strings and sheets; the drainage was good, but the temperature remained high (102° to 104° F.); tonics, nourishing food, stimulation, and out-door life were resorted to, and the little patient gained somewhat. The empyematous cavity, however, did not decrease much, if at all; the discharge decreased, the rubber drains were shortened daily, and finally it was decided to resect the ribs, which I did on January 30 of the present year, assisted by Dr. Morton.

The vertical incision was used, with sliding of the integuments to either side to secure room for the resection; a portion of three ribs was removed in a triangular manner with the base down.

The child bore the operation well, reacted nicely, but died within a week from the prolonged drain and exhaustion incident to so much suffering and suppuration.

An autopsy was held, assisted by Dr. Morton, and an extremely interesting specimen secured.

NOTES OF AUTOPSY ON BODY OF M. D. SIX HOURS AFTER DEATH.

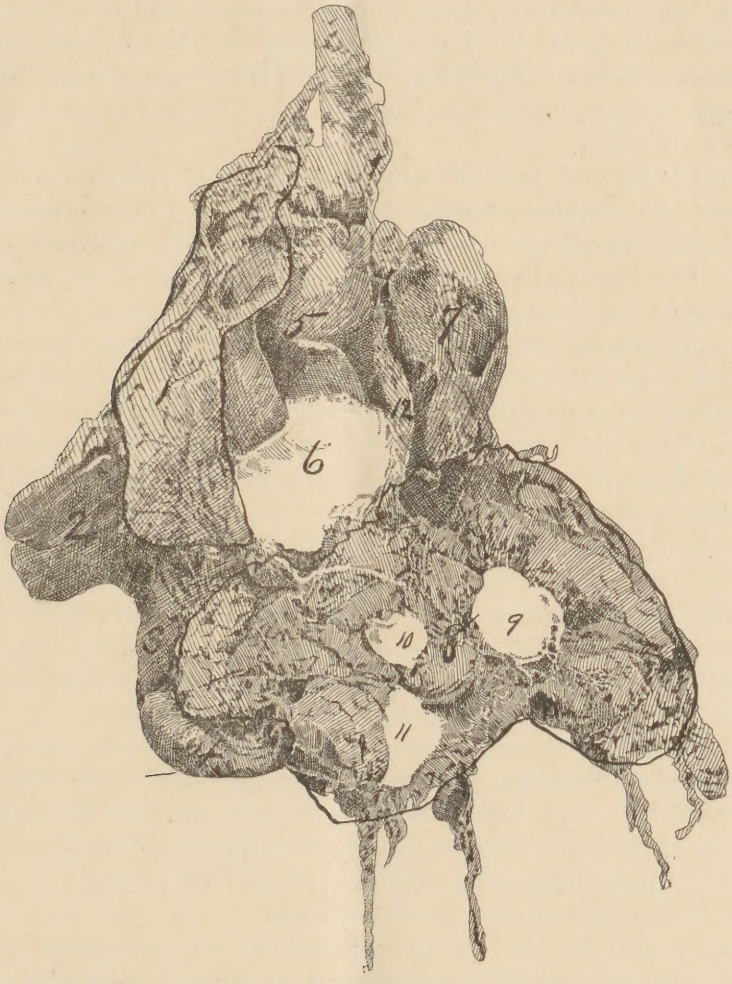
Panniculus adiposus almost absent.

Thorax.—Right pleura, both visceral and reflected, is everywhere covered with recent lymph, which is also intralobular. The mediastinal space was practically obliterated through new-formed connective tissue, embedded in which was the heart with the pericardial sac adherent in places. In the region of the left ventricle was seen the (pericardial) sac which was the site of the first operation, here the pericardium was much thickened and covered by a pyogenic membrane. (See figure.)

The left lobe of the liver was adherent to the diaphragm and the diaphragm in turn adherent to the pericardium; indeed, the stomach, spleen, pancreas, and left lobe of the liver were matted together, the centre of the mass containing the spleen, which was situated in a deep sac.

The kidneys were in a condition of chronic parenchymatous inflammation.

In the light of the post-mortem knowledge it appears, then, that this case was a primary mediastino-pericarditis, which within two months was followed by a purulent pleurisy.



1, Anterior mediastinal tissues greatly thickened; 2, left lobe of liver, 3, stomach, 4, spleen (adherent to fragments of the diaphragm and all bound together in one mass); 5, the heart, with its cavities laid open, *in situ;* 6, pyo-pericardium; 7, left lung; 8, empyematous cavities, with sacculated pus cavities at 9, 10, and 11; 12, thickened pericardium.

The etiology of the case is obscure; no history of injury, exposure to cold, eruptive fevers, which Hare[1] states is an etiological factor, or, in fact, any of the so-called predisposing or exciting causes of the condition under consideration could be obtained. The tubercle bacillus was not found at any time.

It would seem, then, that the little child presented a primary inflamma-

[1] Mediastinal Disease, Fothergillian Essay, 1888.

tion of the entire anterior mediastinum, which of course included the pericardium; that my first operation was a paracentesis pericardii, followed by incision into the sac and drainage; the empyema was a concomitant through continuity and contiguity of tissue.

The literature does not present a great number of similar cases, the very able article by Rotch in Keating's "Cyclopædia" does not mention this association of disease. Ashby and Wright's "Diseases of Children" devotes some space to the symptoms and treatment of mediastinal abscess and mediastinal pericarditis.

The two cases of Ashby in the *Medical Chronicle*, 1891, vol. xv. No. 3, are typical and are very similar to the above, except that they do not appear to have been complicated by empyema, but pneumonia was present in both lungs. The post-mortem appearance in one of the cases, as regards the structures in and about the mediastinum, was almost identical with that of our case, tuberculosis was present, however. His second case had suffered from a past pleuro-pericarditis, accompanied by inflammatory mischief in the mediastinum, still earlier than this the child had suffered from an endocarditis of the mitral valve leading to thickening and adhesion; the child succumbed to a general miliary tuberculosis, and the post-mortem demonstrated the conditions as stated.

In my article in Keating's "Cyclopædia," on "Affections of the Mediastinum," vol. ii. p. 729, two cases of simple or non-suppurative mediastinitis are presented, both males, and of the same age,—ten years. One of these cases was associated with pericarditis and the other appears to have been part of a general process involving the glandular structures of the mediastinum. Both cases were fatal.

Harris (*British Medical Journal*, 1891, ii. 1263) exhibited specimens of chronic mediastino-pericarditis from a boy aged fourteen, to the Manchester Medical Society. Boy had been ill eighteen months, suffered from dyspnœa, cyanosis, distention of neck veins, but no inspiratory distention of these vessels. A marked pulsus paradoxus was present, each inspiration producing a decided diminution in the volume of the pulse.

Both pleuræ contained fluid, more marked on left side. Liver enlarged. The pleuræ were repeatedly aspirated, ascites, anasarca, and catarrhal pneumonia arose, and child died within the week.

The mediastinum contained a large mass that microscopic examination proved to be inspissated pus. The pericardium was everywhere adherent. Liver showed marked venous congestion without any periportal cirrhosis.

Eustace Smith's (*Medical Times and Gazette*, ii., 1884) case of purulent pericarditis and empyema was aged two years and five months; autopsy showed double empyema and pyo-pericardium, the sac containing half a pint of pus; no observation was apparently made of the state of the mediastinum.

Hutton exhibited before the Manchester Medical Society (*British Medi-*

cal Journal, London, 1884, p. 462) sections of the lung and liver of a boy, aged nine, who died of disease of the liver of fifteen months' standing, consequent on mediastino-pericarditis. The lung showed general increase of fibrous tissue, thickening of the walls of the bronchi, and great enlargement and pigmentation of the lymphatic glands. The liver showed great increase of fibrous tissue around the portal vessels with multiplication of the bile-ducts, and slight cirrhosis of the hepatic vessels. The intervening capillaries were so much dilated as to give the section the appearance of a blood-containing sponge.

Hudson (*Dublin Journal of the Medical Sciences*, vol. viii., 1849) has recorded an instructive case of a boy, aged twelve, in whom a friction sound, produced by emphysema of the anterior mediastinum, simulated pericarditis very closely both in its physical signs and clinical symptoms.

The abstracts of some of the medical and surgical cases treated at the General Hospital for Sick Children, Pendlebury, Manchester, England, contain several cases worthy of note in this connection; several of the cases demonstrate the connection between mediastinitis and hepatic congestion and enlargement.

The *Medical Press and Circular*, London, 1884, N. S. xxxvii. 45, contains a case of mediastinitis in a boy aged seventeen, following trauma; other cases are noted in *British Medical Journal*, 1884, i. 63, boy aged eighteen; *Boston Medical and Surgical Journal*, 1867, lxxvi., boy aged seventeen; *Medical Times*, London, 1851, N. S. ii. 609–612, boy aged fifteen; *Medical Times and Gazette*, London, 1884, ii. 539, child aged eighteen months; Ashby, a case of tuberculous mediastino-pericarditis in a boy aged two years, *British Medical Journal*, 1891, ii. 1208.

When we consider suppurative mediastinitis we find from my paper in Keating's "Cyclopædia" that while not a common affection of childhood, still that, when compared with the reported adult cases, it is not an infrequent disorder, as it occurred ten times out of sixteen cases of all ages.

The symptomatic manifestations of the various affections of the mediastinum somewhat closely resemble each other; all growths must interfere with the tissues or organs contained in one or other of the mediastinii, and evidences of pressure in either the circulatory or the respiratory apparatus are noted in almost all cases, hence dyspnœa is usually concomitant, and cyanosis is frequent.

Pain is a constant symptom, but varies in intensity; it is sometimes localized, or it may extend over the thorax, up the neck, and down one or other arm. The cervical and occipital glands may be enlarged.

In acute mediastinal abscess, frequent flushes of heat and rigors may be present; pulsation may occur. Cough is usually present; emaciation marked.

I have been unable to consult the original paper by Hutton on mediastino-pericarditis in children, St. Thomas's Hospital Reports, 1883, London, 1884, N. S. xiii. 211–220.

Our book on "Diseases of the Heart in Infancy"[1] contains the notes of a case reported by Saundby (*Edinburgh Medical Journal*, March, 1875, p. 799), of a boy aged thirteen with pericarditis, pleurisy, and lung abscess, in which aspiration was performed in the fourth interspace, and thirty ounces of pus removed, which the writer thinks probably came from pulmonary abscess; the child survived but a few hours; and Bouchard reports a case of left pleuritis and pericarditis that is worthy of attention on account of the fact, as he expresses it, that two punctures of the heart occurred without accident. The case was tapped eight times.

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[1] Diseases of the Heart in Infancy, Keating and Edwards, F. A. Davis, 1889.

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